**3GPP TSG-RAN WG4 Meeting #111 R4-2408453**

**Fukuoka, Japan, 20th May – 24th May 2024**

|  |  |  |  |  |  |  |  |  |
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| *CR-Form-v12.3* | | | | | | | | |
| **DRAFT CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **-3** | **CR** |  | **rev** |  | **Current version:** |  |  |
|  | | | | | | | | |
| *For* [***HELP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | draft CR 38.101-3 adding 1 LTE + 1 NR EN-DC and NE-DC combinations | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson, NBN | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | DC\_R18\_1BLTE\_1BNR\_2DL2UL | | | | |  | ***Date:*** | | | 2024-05-13 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***Release:*** | | | Rel-18 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Adding 1 LTE + 1 NR EN-DC and NE-DC combinations | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Adding DC\_40(n)AA  Adding DC\_40(n)AC  Adding DC\_40(n)AD  Adding DC\_40A\_n40A  Adding DC\_40C\_n40A  Adding DC\_40D\_n40A  Adding DC\_40A\_n77A  Adding DC\_40C\_n77A  Adding DC\_40D\_n77A  Adding DC\_40D\_n78A  Adding DC\_n77A\_40A  Adding DC\_n77A\_40C  Adding DC\_n77A\_40D  Adding DC\_n78A\_40A  Adding DC\_n78A\_40C  Adding DC\_n78A\_40D  There are no pending lower order fallbacks in the same meeting. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | EN-DC and NE-DC combinations are not added | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.3, 5.5 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS 38.521-1 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

---Start of changes---

Table 5.3B.1.3-1: EN-DC configurations and bandwidth combination sets defined for intra-band non-contiguous EN-DC

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| E-UTRA – NR configuration /Bandwidth combination set | | | | | | | | | |
| Downlink  EN-DC configuration | | Uplink EN-DC configurations | | Component carriers in order of increasing carrier frequency | | | | Maximum aggregated  bandwidth (MHz) | Bandwidth combination set |
|  | |  | | Channel bandwidths for E-UTRA carrier (MHz) | | Channel bandwidths for NR carrier (MHz) | Channel bandwidths for E-UTRA carrier (MHz) |  |  |
| DC\_1A\_n1A | | DC\_1A\_n1A2 | | 5, 10, 15, 20 | | 5, 10, 15, 20 |  | 40 | 0 |
| DC\_2A\_n2A | | DC\_2A\_n2A2 | | 5, 10, 15, 20 | | 5, 10, 15, 20 |  | 40 | 0 |
| DC\_3A\_n3A | | DC\_3A\_n3A | |  | | 5, 10, 15, 20, 25, 30 | 5, 10, 15, 20 | 50 | 0 |
|  | |  | |  | | 5, 10, 15, 20, 25, 30 | 5, 10, 15, 20 | 50 | 1 |
|  | |  | | 5, 10, 15, 20 | | 5, 10, 15, 20, 25, 30 |  |  |  |
| DC\_5A\_n5A | | DC\_5A\_n5A2 | | 5, 10 | | 5, 10, 15 |  | 20 | 0 |
| DC\_7A\_n7A3 | | DC\_7A\_n7A2 | | 5, 10, 15, 20 | | 5, 10, 15, 20 |  | 40 | 0 |
| DC\_40A\_n40A | | DC\_40A\_n40A2 | | 5, 10, 15, 20 | | 5, 10, 15, 20, 25, 30, 40 |  | 60 | 0 |
|  | | 5, 10, 15, 20, 25, 30, 40 | 5, 10, 15, 20 |  |  |
|  | |  | | 5, 10, 15, 20 | | 10, 20, 25, 30, 40, 50, 60, 70, 80 |  | 95 | 1 |
|  | | 10, 20, 25, 30, 40, 50, 60, 70, 80 | 5, 10, 15, 20 |  |  |
| DC\_40C\_n40A | DC\_40A\_n40A2 | | See CA\_40C Bandwidth Combination Set 1 in TS 36.101 Table 5.6A.1-1 | | 10, 20, 25, 30, 40, 50, 60 | |  | 95 | 0 |
|  | | 10, 20, 25, 30, 40, 50, 60 | | See CA\_40C Bandwidth Combination Set 1 in TS 36.101 Table 5.6A.1-1 |  |  |
| DC\_40D\_n40A | | DC\_40A\_n40A2 | | See CA\_40D Bandwidth Combination Set 1 in TS 36.101 Table 5.6A.1-1 | | 10, 20, 25, 30, 40 |  | 95 | 0 |
|  | | 10, 20, 25, 30, 40 | See CA\_40D Bandwidth Combination Set 1 in TS 36.101 Table 5.6A.1-1 |  |  |
|  | |  | |  | | 40, 60, 80,100 | 20 |  |  |
|  | |  | | 20 | | 40, 50, 60, 80,100 |  | 120 | 1 |
|  | |  | |  | | 40, 50, 60, 80,100 | 20 |  |  |
|  | |  | | 20 | | 10, 20, 30, 40, 50, 60, 80,100 |  | 120 | 2 |
|  | |  | |  | | 10, 20, 30, 40, 50, 60, 80,100 | 20 |  |  |
|  | |  | | 10 | | 20, 30, 40, 50, 60, 80,100 |  |  |  |
|  | |  | |  | | 20, 30, 40, 50, 60, 80,100 | 10 |  |  |
| DC\_41A\_n41A | | DC\_41A\_n41A | | 20 | | 40, 60, 80,100 |  | 120 | 0 |
| DC\_41C\_n41A | | DC\_41A\_n41A | | 20+20 | | 40, 60, 80,100 |  | 140 | 0 |
|  | |  | |  | | 40, 60, 80,100 | 20+20 |  |  |
|  | |  | | 20+20 | | 40, 50, 60, 80,100 |  | 140 | 1 |
|  | |  | |  | | 40, 50, 60, 80,100 | 20+20 |  |  |
| DC\_41D\_n41A | | DC\_41A\_n41A | | 20+20+20 | | 40, 60, 80,100 |  | 160 | 0 |
|  | |  | |  | | 40, 60, 80,100 | 20+20+20 |  |  |
|  | |  | | 20+20+20 | | 40, 50, 60, 80,100 |  | 160 | 1 |
|  | |  | |  | | 40, 50, 60, 80,100 | 20+20+20 |  |  |
| DC\_48A\_n48A | | DC\_48A\_n48A2 | | 5, 10, 15, 20 | | 5, 10, 15, 20, 40 |  | 60 | 0 |
|  | |  | |  | | 5, 10, 15, 20, 40 | 5, 10, 15, 20 |  |  |
| DC\_48A-48A\_n48A | | DC\_48A\_n48A2 | | CA\_48A-48A\_BCS \_BCS0 | | 5, 10, 15, 20, 40 |  | 80 | 0 |
|  | |  | |  | | 5, 10, 15, 20, 40 | CA\_48A-48A\_BCS0 |  |  |
| DC\_48C\_n48A | | DC\_48A\_n48A2 | | CA\_48C\_BCS0 | | 5, 10, 15, 20, 40 |  | 80 | 0 |
|  | |  | |  | | 5, 10, 15, 20, 40 | CA\_48C\_BCS0 |  |  |
| DC\_48D\_n48A | | DC\_48A\_n48A2 | | CA\_48D\_BCS0 | | 5, 10, 15, 20, 40 |  | 100 | 0 |
|  | |  | |  | | 5, 10, 15, 20, 40 | CA\_48D\_BCS0 |  |  |
| DC\_66A\_n66A | | DC\_66A\_n66A2 | | 5, 10, 15, 20 | | 5, 10, 15, 20, 40 |  | 50 | 0 |
| 5, 10, 15, 20 | | 5, 10, 15, 20, 25, 30, 40 |  | 60 | 1 |
|  | | 5, 10, 15, 20, 25, 30, 40 | 5, 10, 15, 20 |
| DC\_66B\_n66A | | DC\_66A\_n66A2 | | CA\_66B\_BCS0 | | 5, 10, 15, 20, 40 |  | 50 | 0 |
|  | |  | | CA\_66B\_BCS0 | | 5, 10, 15, 20, 25, 30, 40 |  | 60 | 1 |
| DC\_66A-66A\_n66A | | DC\_66A\_n66A2 | | CA\_66A-66A\_BCS0 | | 5, 10, 15, 20, 40 |  | 70 | 0 |
| CA\_66A-66A\_BCS0 | | 5, 10, 15, 20, 25, 30, 40 |  | 80 | 1 |
|  | | 5, 10, 15, 20, 25, 30, 40 | CA\_66A-66A\_BCS0 |
| DC\_71A\_n71A | | DC\_71A\_n71A2 | | 15 | | 5 |  | 20 | 0 |
|  | |  | | 10 | | 5, 10 |  |  |  |
|  | |  | | 5 | | 5, 10, 15 |  |  |  |
|  | |  | |  | | 5 | 15 |  |  |
|  | |  | |  | | 5, 10 | 10 |  |  |
|  | |  | |  | | 5, 10, 15 | 5 |  |  |
|  | |  | | 5, 10, 15, 20 | | 5, 10, 15, 20 |  | 30 | 1 |
|  | |  | |  | | 5, 10, 15, 20 | 5, 10, 15, 20 |
| NOTE 1: Void.  NOTE 2: Only single switched UL is supported.  NOTE 3: Requirements in this specification apply for NR SCS of 15 kHz only.  NOTE 4: For TDD bands, the minimum requirements only apply for non-simultaneous Tx/Rx between all carriers.  NOTE 5: The UE supporting the configurations indicates intraBandENDC-Support = ‘non-contiguous’ with intraBandENDC-Support-UL absent. | | | | | | | | | |

---Text omitted---

Table 5.3B.1a.2-1: NE-DC configurations and bandwidth combination sets defined for intra-band contiguous NE-DC

| NR – E-UTRA configuration /Bandwidth combination set | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| Downlink  NE-DC configuration | Uplink NE-DC configurations | Component carriers in order of increasing carrier frequency | | | Maximum aggregated  bandwidth (MHz) | Bandwidth combination set |
|  |  | Channel bandwidths for E-UTRA carrier (MHz) | Channel bandwidths for NR carrier (MHz) | Channel bandwidths for E-UTRA carrier (MHz) |  |  |
| DC\_3(n)AA | DC\_3(n)AA1 | 5, 10, 15, 20 | 5,10,15, 20, 25, 30 |  | 50 | 0 |
|  |  |  | 5,10,15, 20, 25, 30 | 5, 10, 15, 20 |  |  |
| DC\_40(n)AA | DC\_40(n)AA1 | 5,10,15,20 | 10, 20, 25, 30, 40, 50, 60, 70, 80, 90 |  | 95 | 0 |
|  |  |  | 10, 20, 25, 30, 40, 50, 60, 70, 80, 90 | 5,10,15,20 |  |  |
| DC\_40(n)AC | DC\_40(n)AA1 | See CA\_40C Bandwidth Combination Set 1 in TS 36.101 Table 5.6A.1-1 | 10, 20, 25, 30, 40, 50, 60, 70 |  | 95 | 0 |
|  |  |  | 10, 20, 25, 30, 40, 50, 60, 70 | See CA\_40C Bandwidth Combination Set 1 in TS 36.101 Table 5.6A.1-1 |  |  |
| DC\_40(n)AD | DC\_40(n)AA1 | See CA\_40D Bandwidth Combination Set 1 in TS 36.101 Table 5.6A.1-1 | 10, 20, 25, 30, 40, 50 |  | 100 | 0 |
|  |  |  | 10, 20, 25, 30, 40, 50 | See CA\_40D Bandwidth Combination Set 1 in TS 36.101 Table 5.6A.1-1 |  |  |
| NOTE 1: Only single switched UL is supported. | | | | | | |

---Text omitted---

Table 5.5B.2a-1: Intra-band contiguous NE-DC configurations

|  |  |  |
| --- | --- | --- |
| NE-DC  configuration | Uplink NE-DC  configuration  (NOTE 1) | Single UL allowed |
| DC\_3(n)AA | DC\_3(n)AA2 | Yes2 |
| DC\_40(n)AA  DC\_40(n)AC  DC\_40(n)AD | DC\_40(n)AA2 | Yes2 |
| NOTE 1: Uplink NE-DC configurations are the configurations supported by the present release of specifications.  NOTE 2: Only single switched UL is supported | | |

### 5.5B.3 Intra-band non-contiguous EN-DC

Table 5.5B.3-1: Intra-band non-contiguous EN-DC configurations

|  |  |  |
| --- | --- | --- |
| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | Single UL allowed |
| DC\_1A\_n1A | DC\_1A\_n1A5 | Yes5 |
| DC\_2A\_n2A | DC\_2A\_n2A5 | Yes5 |
| DC\_3A\_n3A | DC\_3A\_n3A | Yes7 |
| DC\_5A\_n5A | DC\_5A\_n5A5 | Yes5 |
| DC\_7A\_n7A6 | DC\_7A\_n7A5 | Yes5 |
| DC\_40A\_n40A  DC\_40C\_n40A  DC\_40D\_n40A | DC\_40A\_n40A5 | Yes5 |
| DC\_41A\_n41A  DC\_41C\_n41A  DC\_41D\_n41A | DC\_41A\_n41A | Yes4 |
| DC\_48A\_n48A | DC\_48A\_n48A5 | Yes5 |
| DC\_48A-48A\_n48A | DC\_48A\_n48A5 | Yes5 |
| DC\_48C\_n48A | DC\_48A\_n48A5 | Yes5 |
| DC\_48D\_n48A | DC\_48A\_n48A5 | Yes5 |
| DC\_66A\_n66A | DC\_66A\_n66A5 | Yes5 |
| DC\_66B\_n66A | DC\_66A\_n66A5 | Yes5 |
| DC\_66A-66A\_n66A | DC\_66A\_n66A5 | Yes5 |
| DC\_71A\_n71A3 | DC\_71A\_n71A5 | Yes5 |
| NOTE 1: Uplink EN-DC configurations are the configurations supported by the present release of specifications.  NOTE 2: Void.  NOTE 3: For TDD bands, the minimum requirements only apply for non-simultaneous Tx/Rx between all carriers.  NOTE 4: Single UL allowed due to potential emission issues, not self-interference.  NOTE 5: Only single switched UL is supported.  NOTE 6: Requirements in this specification apply for NR SCS of 15 kHz only.  NOTE 7: Single UL allowed due to potential emission issues and self-interference.  NOTE 8: The PC2 Uplink EN-DC configuration supported in Table 6.2B.1.2-1 is applicable to the same EN-DC configuration.  NOTE 9: The PC1.5 Uplink EN-DC configuration supported in Table 6.2B.1.2-1 is applicable to the same EN-DC configuration.  NOTE 10: The UE supporting the configurations indicates intraBandENDC-Support = ‘non-contiguous’ with intraBandENDC-Support-UL absent. | | |

---Text omitted---

Table 5.5B.4.1-1: Inter-band EN-DC configurations within FR1 (two bands)

| **EN-DC**  **configuration** | **Uplink EN-DC**  **configuration**  **(NOTE 1)** | **Single UL allowed** | **DL interruption allowed**  **(Note 14)** |
| --- | --- | --- | --- |
| DC\_1A\_n3A  DC\_1C\_n3A | DC\_1A\_n3A  DC\_1C\_n3A | DC\_1\_n3 |  |
| DC\_1A\_n5A | DC\_1A\_n5A | No |  |
| DC\_1A\_n7A  DC\_1A\_n7B | DC\_1A\_n7A  DC\_1A\_n7B | No |  |
| DC\_1A-1A\_n7A  DC\_1A-1A\_n7B | DC\_1A\_n7A | No |  |
| DC\_1A\_n8A | DC\_1A\_n8A | No |  |
| DC\_1A\_n20A | DC\_1A\_n20A | No |  |
| DC\_1A\_n28A | DC\_1A\_n28A | No |  |
| DC\_1A\_n26A | DC\_1A\_n26A | No |  |
| DC\_1A-1A\_n28A | DC\_1A\_n28A | No |  |
| DC\_1A\_n38A  DC\_1C\_n38A | DC\_1A\_n38A | No |  |
| DC\_1A\_n40A  DC\_1A\_n40B | DC\_1A\_n40A | No |  |
| DC\_1A\_n41A7 | DC\_1A\_n41A | No |  |
| DC\_1A\_n50A | DC\_1A\_n50A | No |  |
| DC\_1A\_n51A | DC\_1A\_n51A | No |  |
| DC\_1A\_n71A  DC\_1A\_n71B | DC\_1A\_n71A | No |  |
| DC\_1A\_n77A7  DC\_1A\_n77C7 | DC\_1A\_n77A | DC\_1\_n77 | No |
| DC\_1A\_n77(2A)7,21  DC\_1A\_n77(3A)7 | DC\_1A\_n77A21 | DC\_1\_n77 | No |
| DC\_1A\_n78A7  DC\_1A\_n78C7, 21 | DC\_1A\_n78A21 | No | No |
| DC\_1A\_n78(2A)7,21  DC\_1A\_n78(A-C)7 | DC\_1A\_n78A21 | No | No |
| DC\_1A-1A\_n78A | DC\_1A\_n78A | No | No |
| DC\_1A\_n79A7  DC\_1A\_n79C7 | DC\_1A\_n79A | No | No |
| DC\_1A\_n105A | DC\_1A\_n105A | No |  |
| DC\_2A\_n5A | DC\_2A\_n5A | No |  |
| DC\_2A-2A\_n5A | DC\_2A\_n5A | No |  |
| DC\_2A\_n7A  DC\_2C\_n7A | DC\_2A\_n7A | No |  |
| DC\_2A\_n7(2A) | DC\_2A\_n7A | No |  |
| DC\_2A-2A\_n7A | DC\_2A\_n7A | No |  |
| DC\_2A\_n12A | DC\_2A\_n12A | No |  |
| DC\_2A\_n25A11, 13, 20 | N/A | N/A |  |
| DC\_2A\_n28A  DC\_2C\_n28A | DC\_2A\_n28A | No |  |
| DC\_2A\_n30A | DC\_2A\_n30A | No |  |
| DC\_2A-2A\_n30A | DC\_2A\_n30A | No |  |
| DC\_2A\_n38A | DC\_2A\_n38A | No |  |
| DC\_2A-2A\_n38A | DC\_2A\_n38A | No |  |
| DC\_2A\_n41A  DC\_2A\_n41C  DC\_2C\_n41A | DC\_2A\_n41A  DC\_2C\_n41A | No |  |
| DC\_2A\_n41(2A) | DC\_2A\_n41A | No |  |
| DC\_2A-2A\_n41A | DC\_2A\_n41A | No |  |
| DC\_2A\_n46A | DC\_2A\_n46A | No |  |
| DC\_2A\_n48A  DC\_2A\_n48B | DC\_2A\_n48A | No |  |
| DC\_2A\_n66A | DC\_2A\_n66A | DC\_2\_n66 |  |
| DC\_2A\_n66(2A) | DC\_2A\_n66A | DC\_2\_n66 |  |
| DC\_2A-2A\_n66A | DC\_2A\_n66A | DC\_2\_n66 |  |
| DC\_2A\_n71A  DC\_2A\_n71B  DC\_2C\_n71A | DC\_2A\_n71A | No |  |
| DC\_2A-2A\_n71A | DC\_2A\_n71A | No |  |
| DC\_2A\_n77A  DC\_2A\_n77C21 | DC\_2A\_n77A21 | DC\_2\_n77 |  |
| DC\_2A\_n77(2A)21 | DC\_2A\_n77A21 | DC\_2\_n77 |  |
| DC\_2A-2A\_n77A21  DC\_2A-2A\_n77C21 | DC\_2A\_n77A21 | DC\_2\_n77 |  |
| DC\_2A-2A\_n77(2A)21 | DC\_2A\_n77A21 | DC\_2\_n77 |  |
| DC\_2A\_n78A | DC\_2A\_n78A | DC\_2\_n78 |  |
| DC\_2A-2A\_n78(2A) | DC\_2A\_n78A | DC\_2\_n78 |  |
| DC\_2A\_n78(2A)21 | DC\_2A\_n78A21 | DC\_2\_n78 |  |
| DC\_2A-2A\_n78A | DC\_2A\_n78A | DC\_2\_n78 |  |
| DC\_3A\_n1A  DC\_3C\_n1A | DC\_3A\_n1A  DC\_3C\_n1A | DC\_3\_n1 |  |
| DC\_3A-3A\_n1A | DC\_3A\_n1A | DC\_3\_n1 |  |
| DC\_3A\_n5A  DC\_3C\_n5A | DC\_3A\_n5A | DC\_3\_n5 |  |
| DC\_3A\_n7A  DC\_3A\_n7B  DC\_3C\_n7A  DC\_3C\_n7B | DC\_3A\_n7A  DC\_3A\_n7B  DC\_3C\_n7A | No |  |
| DC\_3A-3A\_n7A  DC\_3A-3A\_n7B | DC\_3A\_n7A | No |  |
| DC\_3A\_n8A | DC\_3A\_n8A | No |  |
| DC\_3A-3A\_n8A | DC\_3A\_n8A | No |  |
| DC\_3A\_n20A  DC\_3C\_n20A | DC\_3A\_n20A | No |  |
| DC\_3A\_n26A  DC\_3C\_n26A | DC\_3A\_n26A  DC\_3C\_n26A | Yes |  |
| DC\_3A\_n28A  DC\_3C\_n28A | DC\_3A\_n28A  DC\_3C\_n28A | No |  |
| DC\_3A\_n34A | DC\_3A\_n34A | No |  |
| DC\_3A\_n38A  DC\_3C\_n38A | DC\_3A\_n38A | No |  |
| DC\_3A\_n40A  DC\_3A\_n40B | DC\_3A\_n40A | No |  |
| DC\_3A\_n41A7  DC\_3A\_n41C  DC\_3C\_n41A7 | DC\_3A\_n41A  DC\_3C\_n41A | DC\_3\_n41 | No |
| DC\_3A\_n50A | DC\_3A\_n50A | No |  |
| DC\_3A\_n51A | DC\_3A\_n51A | No |  |
| DC\_3A\_n71A  DC\_3A\_n71B | DC\_3A\_n71A | No |  |
| DC\_3A\_n77A7  DC\_3A\_n77C7  DC\_3C\_n77A7,21 | DC\_3A\_n77A21  DC\_3C\_n77A | DC\_3\_n77 | No |
| DC\_3A\_n77(2A)7,21  DC\_3A\_n77(3A)7  DC\_3C\_n77(2A)7,21 | DC\_3A\_n77A,21  DC\_3C\_n77A | DC\_3\_n77 | No |
| DC\_3A-3A\_n77A7 | DC\_3A\_n77A | DC\_3\_n77 | No |
| DC\_3A\_n78A7,23  DC\_3A\_n78C7  DC\_3C\_n78A7,21 | DC\_3A\_n78A,21,23  DC\_3C\_n78A | DC\_3\_n78 | No |
| DC\_3A\_n78(2A)7,21  DC\_3A\_n78(A-C)7  DC\_3C\_n78(2A)7,21 | DC\_3A\_n78A,21  DC\_3C\_n78A | DC\_3\_n78 | No |
| DC\_3A-3A\_n78A7, 21 | DC\_3A\_n78A21 | DC\_3\_n78 | No |
| DC\_3A\_n79A7  DC\_3A\_n79C7  DC\_3C\_n79A7 | DC\_3A\_n79A  DC\_3C\_n79A | No | No |
| DC\_3A-3A\_n79A7 | DC\_3A\_n79A | No |  |
| DC\_3A\_n105A | DC\_3A\_n105A | No |  |
| DC\_4A\_n2A | DC\_4A\_n2A | No |  |
| DC\_4A\_n5A | DC\_4A\_n5A | DC\_4\_n5 |  |
| DC\_4A\_n7A | DC\_4A\_n7A | No |  |
| DC\_4A\_n28A | DC\_4A\_n28A | No |  |
| DC\_4A\_n38A | DC\_4A\_n38A | No |  |
| DC\_4A\_n41A | DC\_4A\_n41A | No |  |
| DC\_4A\_n78A | DC\_4A\_n78A | No |  |
| DC\_4A\_n78(2A) | DC\_4A\_n78A | No |  |
| DC\_5A\_n1A | DC\_5A\_n1A | No |  |
| DC\_5A\_n2A  DC\_5B\_n2A | DC\_5A\_n2A | No |  |
| DC\_5A\_n2(2A) | DC\_5A\_n2A | No |  |
| DC\_5A-5A\_n2A | DC\_5A\_n2A | No |  |
| DC\_5A\_n3A | DC\_5A\_n3A | DC\_5\_n3 |  |
| DC\_5A\_n7A | DC\_5A\_n7A | DC\_5\_n7 |  |
| DC\_5A\_n7(2A) | DC\_5A\_n7A | DC\_5\_n7 |  |
| DC\_5A\_n12A | DC\_5A\_n12A | No |  |
| DC\_5A\_n25A | DC\_5A\_n25A | No |  |
| DC\_5A\_n28A | DC\_5A\_n28A | No |  |
| DC\_5A\_n30A | DC\_5A\_n30A | No |  |
| DC\_5A\_n38A | DC\_5A\_n38A | DC\_5\_n38 |  |
| DC\_5A\_n40A | DC\_5A\_n40A | No |  |
| DC\_5A\_n41A | DC\_5A\_n41A | No |  |
| DC\_5A\_n48A  DC\_5A\_n48B | DC\_5A\_n48A | No |  |
| DC\_5A\_n66A  DC\_5B\_n66A | DC\_5A\_n66A | DC\_5\_n66 |  |
| DC\_5A-5A\_n66A | DC\_5A\_n66A | DC\_5\_n66 |  |
| DC\_5A\_n77A  DC\_5A\_n77C21 | DC\_5A\_n77A21 | No |  |
| DC\_5A\_n77(2A)21  DC\_5A\_n77(3A) | DC\_5A\_n77A21 | No |  |
| DC\_5A\_n71A | DC\_5A\_n71A | No |  |
| DC\_5A\_n78A7  DC\_5A\_n78C7 | DC\_5A\_n78A | No | No |
| DC\_5A\_n78(2A)7,21  DC\_5A\_n78(A-C)7 | DC\_5A\_n78A21 | No | No |
| DC\_5A\_n79A | DC\_5A\_n79A | No | No |
| DC\_7A\_n1A  DC\_7C\_n1A | DC\_7A\_n1A  DC\_7C\_n1A | No |  |
| DC\_7A-7A\_n1A | DC\_7A\_n1A | No |  |
| DC\_7A\_n2A  DC\_7C\_n2A | DC\_7A\_n2A | No |  |
| DC\_7A\_n2(2A) | DC\_7A\_n2A | No |  |
| DC\_7A\_n3A  DC\_7C\_n3A | DC\_7A\_n3A  DC\_7C\_n3A | No |  |
| DC\_7A\_n5A  DC\_7C\_n5A | DC\_7A\_n5A  DC\_7C\_n5A | DC\_7\_n5 |  |
| DC\_7A-7A\_n5A | DC\_7A\_n5A | DC\_7\_n5 |  |
| DC\_7A\_n8A | DC\_7A\_n8A | No |  |
| DC\_7A-7A\_n8A | DC\_7A\_n8A | No |  |
| DC\_7A\_n12A | DC\_7A\_n12A | No |  |
| DC\_7A-7A\_n78(2A)7,21 | DC\_7A\_n78A21 | No |  |
| DC\_7A\_n20A | DC\_7A\_n20A | No |  |
| DC\_7A\_n25A  DC\_7C\_n25A | DC\_7A\_n25A | No |  |
| DC\_7A\_n26A  DC\_7C\_n26A | DC\_7A\_n26A  DC\_7C\_n26A | Yes |  |
| DC\_7A-7A\_n25A | DC\_7A\_n25A | No |  |
| DC\_7A\_n28A  DC\_7C\_n28A | DC\_7A\_n28A  DC\_7C\_n28A | No |  |
| DC\_7A\_n40A | DC\_7A\_n40A | Yes |  |
| DC\_7A-7A\_n40A | DC\_7A\_n40A | Yes |  |
| DC\_7A-7A\_n28A | DC\_7A\_n28A | No |  |
| DC\_7A\_n51A | DC\_7A\_n51A | No |  |
| DC\_7A\_n66A  DC\_7C\_n66A | DC\_7A\_n66A | No |  |
| DC\_7A-7A\_n66A | DC\_7A\_n66A | No |  |
| DC\_7A\_n71A | DC\_7A\_n71A | No |  |
| DC\_7A\_n77A7  DC\_7C\_n77A | DC\_7A\_n77A | No |  |
| DC\_7A\_n77(2A)  DC\_7A\_n77(3A)  DC\_7C\_n77(2A) | DC\_7A\_n77A | No |  |
| DC\_7A-7A\_n77A7 | DC\_7A\_n77A | No |  |
| DC\_7A-7A\_n77(2A)  DC\_7A-7A\_n77(3A) | DC\_7A\_n77A | No |  |
| DC\_7A\_n78A7,24  DC\_7C\_n78A7,21  DC\_7A\_n78C7 | DC\_7A\_n78A21,24  DC\_7C\_n78A | No |  |
| DC\_7A\_n78(2A)7,21  DC\_7A\_n78(A-C)7  DC\_7C\_n78(2A)7, 21 | DC\_7A\_n78A21  DC\_7C\_n78A | No |  |
| DC\_7A-7A\_n78A7, 21  DC\_7A-7A\_n78C7 | DC\_7A\_n78A21 | No |  |
| DC\_7A-7A\_n78(A-C)7 | DC\_7A\_n78A | No |  |
| DC\_7A\_n79A  DC\_7A\_n79C | DC\_7A\_n79A | No |  |
| DC\_7A-7A\_n79A | DC\_7A\_n79A | No |  |
| DC\_7A\_n105A | DC\_7A\_n105A | No |  |
| DC\_8A\_n1A  DC\_8B\_n1A | DC\_8A\_n1A  DC\_8B\_n1A | No |  |
| DC\_8A\_n2A | DC\_8A\_n2A | DC\_8\_n2 |  |
| DC\_8A\_n3A  DC\_8B\_n3A | DC\_8A\_n3A | No |  |
| DC\_8A\_n7A | DC\_8A\_n7A | No |  |
| DC\_8A\_n20A | DC\_8A\_n20A | Yes |  |
| DC\_8A\_n28A | DC\_8A\_n28A | No |  |
| DC\_8A\_n34A | DC\_8A\_n34A | No |  |
| DC\_8A\_n38A | DC\_8A\_n38A | No |  |
| DC\_8A\_n39A | DC\_8A\_n39A | No |  |
| DC\_8A\_n40A7 | DC\_8A\_n40A | No |  |
| DC\_8A\_n41A7  DC\_8A\_n41C | DC\_8A\_n41A | No | No |
| DC\_8A\_n41(2A) | DC\_8A\_n41A | No | No |
| DC\_8A\_n77A7  DC\_8B\_n77A7 | DC\_8A\_n77A | No | No |
| DC\_8A\_n77(2A)7,21  DC\_8A\_n77(3A)7 | DC\_8A\_n77A21 | No | No |
| DC\_8A\_n78A7,24  DC\_8B\_n78A7, 21 | DC\_8A\_n78A21,24  DC\_8B\_n78A | No | No |
| DC\_8A\_n78(2A)7, 21 | DC\_8A\_n78A21 | No | No |
| DC\_8A\_n79A7  DC\_8A\_n79C | DC\_8A\_n79A  DC\_8A\_n79C | No | No |
| DC\_8A\_n93A | DC\_8A\_n93A\_ULSUP-TDM | N/A |  |
| DC\_8A\_n94A | DC\_8A\_n94A\_ULSUP-TDM | N/A |  |
| DC\_11A\_n1A | DC\_11A\_n1A | No |  |
| DC\_11A\_n3A | DC\_11A\_n3A | No |  |
| DC\_11A\_n28A | DC\_11A\_n28A | No |  |
| DC\_11A\_n41A7 | DC\_11A\_n41A | No |  |
| DC\_11A\_n77A7 | DC\_11A\_n77A | No | No |
| DC\_11A\_n77(2A)7  DC\_11A\_n77(3A)7 | DC\_11A\_n77A | No | No |
| DC\_11A\_n78A7 | DC\_11A\_n78A | No | No |
| DC\_11A\_n78(2A) | DC\_11A\_n78A | No | No |
| DC\_11A\_n79A7 | DC\_11A\_n79A | No |  |
| DC\_12A\_n2A | DC\_12A\_n2A | No |  |
| DC\_12A\_n2(2A) | DC\_12A\_n2A | No |  |
| DC\_12A\_n5A | DC\_12A\_n5A | No |  |
| DC\_12A\_n7A | DC\_12A\_n7A | No |  |
| DC\_12A\_n7(2A) | DC\_12A\_n7A | No |  |
| DC\_12A\_n25A | DC\_12A\_n25A | No |  |
| DC\_12A\_n30A | DC\_12A\_n30A | No |  |
| DC\_12A\_n38A | DC\_12A\_n38A | No |  |
| DC\_12A\_n41A | DC\_12A\_n41A | No |  |
| DC\_12A\_n66A | DC\_12A\_n66A | No |  |
| DC\_12A\_n66(2A) | DC\_12A\_n66A | No |  |
| DC\_12A\_n71A | DC\_12A\_n71A18,19 | DC\_12\_n71 |  |
| DC\_12A\_n77A | DC\_12A\_n77A | DC\_12\_n77 |  |
| DC\_12A\_n77(2A)21 | DC\_12A\_n77A21 | DC\_12\_n77 |  |
| DC\_12A\_n78A | DC\_12A\_n78A | DC\_12\_n78 |  |
| DC\_12A\_n78(2A) | DC\_12A\_n78A | DC\_12\_n78 |  |
| DC\_13A\_n2A | DC\_13A\_n2A | No |  |
| DC\_13A\_n5A | DC\_13A\_n5A | DC\_13\_n5 |  |
| DC\_13A\_n7A | DC\_13A\_n7A | No |  |
| DC\_13A\_n7(2A) | DC\_13A\_n7A | No |  |
| DC\_13A\_n25A | DC\_13A\_n25A | No |  |
| DC\_13A\_n48A  DC\_13A\_n48B | DC\_13A\_n48A | No |  |
| DC\_13A\_n66A | DC\_13A\_n66A | No |  |
| DC\_13A\_n71A | DC\_13A\_n71A | No |  |
| DC\_13A\_n77A  DC\_13A\_n77C21 | DC\_13A\_n77A21 | No |  |
| DC\_13A\_n78A | DC\_13A\_n78A | No |  |
| DC\_13A\_n78(2A)21 | DC\_13A\_n78A21 | No |  |
| DC\_14A\_n2A | DC\_14A\_n2A | No |  |
| DC\_14A\_n5A | DC\_14A\_n5A | DC\_14\_n5 |  |
| DC\_14A\_n30A | DC\_14A\_n30A | No |  |
| DC\_14A\_n41A | DC\_14A\_n41A | No |  |
| DC\_14A\_n66A | DC\_14A\_n66A | No |  |
| DC\_14A\_n77A | DC\_14A\_n77A | No |  |
| DC\_14A\_n77(2A)21 | DC\_14A\_n77A21 | No |  |
| DC\_18A\_n3A | DC\_18A\_n3A | No |  |
| DC\_18A\_n28A | DC\_18A\_n28A | No |  |
| DC\_18A\_n41A16 | DC\_18A\_n41A | No |  |
| DC\_18A\_n77A7  DC\_18A\_n77(2A)7 | DC\_18A\_n77A | No | No |
| DC\_18A\_n78A7 | DC\_18A\_n78A | No | No |
| DC\_18A\_n78(2A)7 | DC\_18A\_n78A | No | No |
| DC\_20A\_n91A | DC\_20A\_n91A\_ULSUP-TDM | N/A |  |
| DC\_20A\_n92A | DC\_20A\_n92A\_ULSUP-TDM | N/A |  |
| DC\_18A\_n79A7 | DC\_18A\_n79A | No |  |
| DC\_19A\_n1A | DC\_19A\_n1A | No |  |
| DC\_19A\_n77A7  DC\_19A\_n77C7 | DC\_19A\_n77A | No |  |
| DC\_19A\_n77(2A)7, 21 | DC\_19A\_n77A21 | No |  |
| DC\_19A\_n78A7  DC\_19A\_n78C7 | DC\_19A\_n78A | No | No |
| DC\_19A\_n78(2A)7, 21 | DC\_19A\_n78A21 | No | No |
| DC\_19A\_n79A7  DC\_19A\_n79C7 | DC\_19A\_n79A | No | No |
| DC\_20A\_n1A | DC\_20A\_n1A | No |  |
| DC\_20A\_n3A | DC\_20A\_n3A | No |  |
| DC\_20A\_n7A | DC\_20A\_n7A | DC\_20\_n7 |  |
| DC\_20A\_n8A | DC\_20A\_n8A | DC\_20\_n8 |  |
| DC\_20A\_n28A8,11,13 | DC\_20A\_n28A | No |  |
| DC\_20A\_n38A | DC\_20A\_n38A | No |  |
| DC\_20A\_n40A | DC\_20A\_n40A | No |  |
| DC\_20A\_n41A | DC\_20A\_n41A | DC\_20\_n41 |  |
| DC\_20A\_n50A | DC\_20A\_n50A | No |  |
| DC\_20A\_n51A | DC\_20A\_n51A | No |  |
| DC\_20A\_n77A7 | DC\_20A\_n77A | No |  |
| DC\_20A\_n78A7,24  DC\_20A\_n78C7 | DC\_20A\_n78A24 | No |  |
| DC\_20A\_n78(2A)7 | DC\_20A\_n78A | No |  |
| DC\_21A\_n1A | DC\_21A\_n1A | No |  |
| DC\_21A\_n28A17 | DC\_21A\_n28A | DC\_21\_n28 |  |
| DC\_21A\_n77A7  DC\_21A\_n77C7 | DC\_21A\_n77A | No |  |
| DC\_21A\_n77(2A)7,21 | DC\_21A\_n77A21 | No |  |
| DC\_21A\_n78A7  DC\_21A\_n78C7 | DC\_21A\_n78A | No | No |
| DC\_21A\_n78(2A)7,21 | DC\_21A\_n78A21 | No | No |
| DC\_21A\_n79A7  DC\_21A\_n79C7 | DC\_21A\_n79A | No | No |
| DC\_25A\_n41A | DC\_25A\_n41A | No |  |
| DC\_25A-25A\_n41A | DC\_25A\_n41A | No |  |
| DC\_25A\_n77A | DC\_25A\_n77A | DC\_25\_n77 |  |
| DC\_25A-25A\_n77A | DC\_25A\_n77A | DC\_25\_n77 |  |
| DC\_25A\_n78A | DC\_25A\_n78A | DC\_25\_n78 |  |
| DC\_25A-25A\_n78A | DC\_25A\_n78A | DC\_25\_n78 |  |
| DC\_26A\_n25A | DC\_26A\_n25A | No |  |
| DC\_26A\_n41A | DC\_26A\_n41A | No |  |
| DC\_26A\_n77A7 | DC\_26A\_n77A | No |  |
| DC\_26A\_n78A7 | DC\_26A\_n78A | No |  |
| DC\_26A\_n78(2A) | DC\_26A\_n78A | No |  |
| DC\_26A\_n79A7 | DC\_26A\_n79A | No |  |
| DC\_28A\_n1A | DC\_28A\_n1A | No |  |
| DC\_28A\_n2A | DC\_28A\_n2A | No |  |
| DC\_28A\_n3A | DC\_28A\_n3A | No |  |
| DC\_28A\_n5A | DC\_28A\_n5A | No |  |
| DC\_28A\_n7A  DC\_28A\_n7B | DC\_28A\_n7A  DC\_28A\_n7B | No |  |
| DC\_28A\_n51A | DC\_28A\_n51A | No |  |
| DC\_28A\_n8A | DC\_28A\_n8A | No |  |
| DC\_28A\_n20A8,11,13 | DC\_28A\_n20A | No |  |
| DC\_28A\_n38A | DC\_28A\_n38A | No |  |
| DC\_28A\_n40A | DC\_28A\_n40A | No |  |
| DC\_28A\_n41A7 | DC\_28A\_n41A | No |  |
| DC\_28A\_n50A | DC\_28A\_n50A | No |  |
| DC\_28A\_n66A | DC\_28A\_n66A | No |  |
| DC\_28A\_n77A7  DC\_28A\_n77C7 | DC\_28A\_n77A | No | No |
| DC\_28A\_n77(2A)7 | DC\_28A\_n77A | No | No |
| DC\_28A\_n78A7,24  DC\_28A\_n78C7 | DC\_28A\_n78A24 | No | No |
| DC\_28A\_n78(2A)7 | DC\_28A\_n78A | No | No |
| DC\_28A\_n79A7  DC\_28A\_n79C7 | DC\_28A\_n79A | No |  |
| DC\_30A\_n2A | DC\_30A\_n2A | No |  |
| DC\_30A\_n5A | DC\_30A\_n5A | No |  |
| DC\_30A\_n66A | DC\_30A\_n66A | No |  |
| DC\_30A\_n77A | DC\_30A\_n77A | No |  |
| DC\_30A\_n77(2A)21 | DC\_30A\_n77A21 | No |  |
| DC\_38A\_n1A | DC\_38A\_n1A | No |  |
| DC\_38A\_n3A | DC\_38A\_n3A | No |  |
| DC\_38A\_n8A | DC\_38A\_n8A | No |  |
| DC\_38A\_n28A | DC\_38A\_n28A | No |  |
| DC\_38A\_n78A7 | DC\_38A\_n78A | No |  |
| DC\_38A\_n79A  DC\_38A\_n79C | DC\_38A\_n79A | No |  |
| DC\_39A\_n40A3 | DC\_39A\_n40A | No |  |
| DC\_39A\_n41A  DC\_39C\_n41A  DC\_39A\_n41C | DC\_39A\_n41A  DC\_39C\_n41A | No | No |
| DC\_39A\_n78A5,7 | DC\_39A\_n78A | No |  |
| DC\_39A\_n79A7  DC\_39A\_n79C7 | DC\_39A\_n79A | No | No |
| DC\_40A\_n1A  DC\_40C\_n1A | DC\_40A\_n1A | No |  |
| DC\_40A\_n3A | DC\_40A\_n3A | No |  |
| DC\_40A\_n7A | DC\_40A\_n7A | No |  |
| DC\_40A\_n41A  DC\_40A\_n41C  DC\_40C\_n41A | DC\_40A\_n41A | No |  |
| DC\_40A\_n41(2A) | DC\_40A\_n41A | No |  |
| DC\_40A\_n77A  DC\_40A\_n77C  DC\_40C\_n77A  DC\_40C\_n77C DC\_40D\_n77A | DC\_40A\_n77A | No |  |
| DC\_40A\_n78A  DC\_40A\_n78C  DC\_40C\_n78A  DC\_40C\_n78C DC\_40D\_n78A | DC\_40A\_n78A23  DC\_40C\_n78A | No |  |
| DC\_40A\_n78(2A)  DC\_40C\_n78(2A) | DC\_40A\_n78A  DC\_40C\_n78A | No |  |
| DC\_40A\_n79A7,12  DC\_40A\_n79C7,12  DC\_40C\_n79A7,12 | DC\_40A\_n79A | No | No |
| DC\_41A\_n1A  DC\_41C\_n1A | DC\_41A\_n1A  DC\_41C\_n1A | No | DC\_41A\_n1A  DC\_41C\_n1A |
| DC\_41A\_n3A7  DC\_41C\_n3A7 | DC\_41A\_n3A  DC\_41C\_n3A | No |  |
| DC\_41A\_n28A7  DC\_41C\_n28A7 | DC\_41A\_n28A  DC\_41C\_n28A | No |  |
| DC\_41A\_n77A  DC\_41C\_n77A | DC\_41A\_n77A  DC\_41C\_n77A | No |  |
| DC\_41A\_n77(2A)  DC\_41C\_n77(2A) | DC\_41A\_n77A  DC\_41C\_n77A | No |  |
| DC\_41A\_n78A24  DC\_41C\_n78A  DC\_41D\_n78A | DC\_41A\_n78A24  DC\_41C\_n78A | No |  |
| DC\_41A\_n78(2A)  DC\_41C\_n78(2A) | DC\_41A\_n78A  DC\_41C\_n78A | No |  |
| DC\_41A\_n79A6,7  DC\_41A\_n79C6,7  DC\_41C\_n79A6,7 | DC\_41A\_n79A  DC\_41C\_n79A | No | No |
| DC\_42A\_n1A7  DC\_42C\_n1A7 | DC\_42A\_n1A  DC\_42C\_n1A | No |  |
| DC\_42A\_n3A**7**  DC\_42C\_n3A7 | DC\_42A\_n3A  DC\_42C\_n3A | DC\_42\_n3 |  |
| DC\_42A\_n28A7  DC\_42C\_n28A7 | DC\_42A\_n28A  DC\_42C\_n28A | No |  |
| DC\_42A\_n51A | DC\_42A\_n51A | No |  |
| DC\_42A\_n77A3,4,9,11,13 DC\_42A\_n77C3,4,9,11  DC\_42C\_n77A3,4,9,11  DC\_42C\_n77C3,4,9,11  DC\_42D\_n77A3,4,9,11  DC\_42D\_n77C  DC\_42E\_n77A3,4,9,11  DC\_42E\_n77C | N/A | N/A |  |
| DC\_42A\_n77(2A)3,4,9,11  DC\_42C\_n77(2A)3,4,9,11 | N/A | N/A |  |
| DC\_42A\_n78A3,4,9,11,13  DC\_42A\_n78C3,4,9,11  DC\_42C\_n78A3,4,9,11  DC\_42C\_n78C3,4,9,11  DC\_42D\_n78A3,4,9,11  DC\_42D\_n78C3,4,9,11  DC\_42E\_n78A3,4,9,11  DC\_42E\_n78C3,4,9,11 | N/A | N/A |  |
| DC\_42A\_n79A9,15  DC\_42A\_n79C9,15  DC\_42C\_n79A9,15  DC\_42C\_n79C9,15  DC\_42D\_n79A9,15  DC\_42D\_n79C9,15  DC\_42E\_n79A9,15  DC\_42E\_n79C9,15 | N/A | N/A |  |
| DC\_46A\_n77A2 | N/A | N/A |  |
| DC\_46A\_n78A2  DC\_46C\_n78A2  DC\_46D\_n78A2  DC\_46E\_n78A2 | N/A | N/A |  |
| DC\_48A\_n2A  DC\_48C\_n2A  DC\_48D\_n2A  DC\_48E\_n2A | DC\_48A\_n2A | No |  |
| DC\_48A\_n5A  DC\_48C\_n5A  DC\_48D\_n5A  DC\_48E\_n5A | DC\_48A\_n5A | No |  |
| DC\_48A\_n12A | DC\_48A\_n12A | No |  |
| DC\_48A\_n25A  DC\_48C\_n25A  DC\_48D\_n25A | DC\_48A\_n25A | No |  |
| DC\_48A\_n46A  DC\_48B\_n46A  DC\_48C\_n46A  DC\_48D\_n46A  DC\_48E\_n46A  DC\_48A\_n46B  DC\_48B\_n46B  DC\_48C\_n46B  DC\_48D\_n46B  DC\_48E\_n46B  DC\_48A\_n46C  DC\_48B\_n46C  DC\_48C\_n46C  DC\_48D\_n46C  DC\_48E\_n46C  DC\_48A\_n46D  DC\_48B\_n46D  DC\_48C\_n46D  DC\_48D\_n46D  DC\_48E\_n46D | DC\_48A\_n46A  DC\_48B\_n46A | No |  |
| DC\_48A\_n66A  DC\_48C\_n66A  DC\_48D\_n66A  DC\_48E\_n66A | DC\_48A\_n66A | No |  |
| DC\_48A\_n71A  DC\_48B\_n71A  DC\_48C\_n71A  DC\_48D\_n71A | DC\_48A\_n71A | No |  |
| DC\_48A-48A\_n71A  DC\_48A-48A-48A\_n71A | DC\_48A\_n71A | No |  |
| DC\_48A\_n77A3. 4. 9, 11  DC\_48C\_n77A3. 4. 9, 11  DC\_48A\_n77C3. 4. 9, 11  DC\_48C\_n77C3. 4. 9, 11  DC\_48D\_n77A3. 4. 9, 11  DC\_48D\_n77C3. 4. 9, 11  DC\_48E\_n77A3. 4. 9, 11 | N/A | N/A |  |
| DC\_48A-48A\_n77A | N/A | N/A |  |
| DC\_48A-48A-48A\_n77A | N/A | N/A |  |
| DC\_66A\_n2A  DC\_66B\_n2A  DC\_66C\_n2A | DC\_66A\_n2A | DC\_66\_n2 |  |
| DC\_66A\_n2(2A) | DC\_66A\_n2A | DC\_66\_n2 |  |
| DC\_66A-66A\_n2A | DC\_66A\_n2A | DC\_66\_n2 |  |
| DC\_66A-66A-66A\_n2A | DC\_66A\_n2A | DC\_66\_n2 |  |
| DC\_66A\_n5A  DC\_66B\_n5A  DC\_66C\_n5A | DC\_66A\_n5A | DC\_66\_n5 |  |
| DC\_66A-66A\_n5A | DC\_66A\_n5A | DC\_66\_n5 |  |
| DC\_66A-66A-66A\_n5A | DC\_66A\_n5A | DC\_66\_n5 |  |
| DC\_66A\_n7A | DC\_66A\_n7A | No |  |
| DC\_66A\_n7(2A) | DC\_66A\_n7A | No |  |
| DC\_66A-66A\_n7A | DC\_66A\_n7A | No |  |
| DC\_66A-66A\_n7(2A) | DC\_66A\_n7A | No |  |
| DC\_66A\_n12A | DC\_66A\_n12A | No |  |
| DC\_66A\_n25A | DC\_66A\_n25A | DC\_66\_n25 |  |
| DC\_66A\_n28A | DC\_66A\_n28A | No |  |
| DC\_66A\_n30A | DC\_66A\_n30A | No |  |
| DC\_66A-66A\_n30A | DC\_66A\_n30A | No |  |
| DC\_66A\_n38A | DC\_66A\_n38A | No |  |
| DC\_66A-66A\_n38A | DC\_66A\_n38A | No |  |
| DC\_66A\_n41A  DC\_66A\_n41C | DC\_66A\_n41A | No |  |
| DC\_66A\_n41(2A) | DC\_66A\_n41A | No |  |
| DC\_66A\_n46A | DC\_66A\_n46A | No |  |
| DC\_66A\_n48A  DC\_66A\_n48B | DC\_66A\_n48A | No |  |
| DC\_66A-66A\_n48A  DC\_66A-66A\_n48B | DC\_66A\_n48A | No |  |
| DC\_66A\_n71A  DC\_66C\_n71A  DC\_66A\_n71B | DC\_66A\_n71A | No |  |
| DC\_66A-66A\_n71A | DC\_66A\_n71A | No |  |
| DC\_66A\_n77A  DC\_66A\_n77C21 | DC\_66A\_n77A21 | DC\_66\_n77 |  |
| DC\_66A\_n77(2A)21 | DC\_66A\_n77A21 | DC\_66\_n77 |  |
| DC\_66A-66A\_n77A21  DC\_66A-66A\_n77C21 | DC\_66A\_n77A21 | DC\_66\_n77 |  |
| DC\_66A-66A\_n77(2A)21 | DC\_66A\_n77A21 | DC\_66\_n77 |  |
| DC\_66A-66A-66A\_n77A21  DC\_66A-66A-66A\_n77C21 | DC\_66A\_n77A21 | DC\_66\_n77 |  |
| DC\_66A-66A-66A\_n77(2A)21 | DC\_66A\_n77A21 | DC\_66\_n77 |  |
| DC\_66A\_n78A | DC\_66A\_n78A | No |  |
| DC\_66A\_n78(2A) 21 | DC\_66A\_n78A21 | No |  |
| DC\_66A-66A\_n78A21 | DC\_66A\_n78A21 | No |  |
| DC\_66A-66A\_n78(2A)21 | DC\_66A\_n78A21 | No |  |
| DC\_71A\_n2A | DC\_71A\_n2A | No |  |
| DC\_71A\_n2(2A) | DC\_71A\_n2A | No |  |
| DC\_71A\_n5A | DC\_71A\_n5A | No |  |
| DC\_71A\_n12A | DC\_71A\_n12A18,19 | Yes |  |
| DC\_71A\_n38A | DC\_71A\_n38A | No |  |
| DC\_71A\_n7A | DC\_71A\_n7A | No |  |
| DC\_71A\_n25A | DC\_71A\_n7A | No |  |
| DC\_71A\_n41A | DC\_71A\_n41A | No |  |
| DC\_71A\_n48A | DC\_71A\_n48A | No |  |
| DC\_71A\_n66A | DC\_71A\_n66A | No |  |
| DC\_71A\_n77A  DC\_71A\_n77C | DC\_71A\_n77A | No |  |
| DC\_71A\_n77(2A) | DC\_71A\_n77A | No |  |
| DC\_71A\_n78A | DC\_71A\_n78A | No |  |
| DC\_71A\_n78(2A)21 | DC\_71A\_n78A21 | No |  |
| NOTE 1: Uplink EN-DC configurations are the configurations supported by the present release of specifications.  NOTE 2: Restricted to E-UTRA operation when inter-band carrier aggregation is configured. The downlink operating band for Band 46 is paired with the uplink operating band (external E-UTRA band) of the carrier aggregation configuration that is supporting the configured Pcell.  NOTE 3: The minimum requirements apply only when there is non-simultaneous Tx/Rx operation between E-UTRA and NR carriers. This restriction applies also for these carriers when applicable EN-DC configuration is part of a higher order EN-DC configuration.  NOTE 4: For a UE not capable of *interBandMRDC-WithOverlapDL-Bands-r16* or a UE capable of *interBandMRDC-WithOverlapDL-Bands-r16* and *requirementTypeIndication-r18* and is provided with *nonCollocatedTypeMRDC-r18*, the minimum requirements for intra-band non-contiguous EN-DC apply for the Band 42/48 and Band n77/n78 combination. For a UE not capable of *interBandMRDC-WithOverlapDL-Bands-r16* or a UE capable of *interBandMRDC-WithOverlapDL-Bands-r16* and *requirementTypeIndication-r18* and is provided with *nonCollocatedTypeMRDC-r18*, when UE capability *interBandContiguousMRDC* is indicated, the minimum requirements for intra-band contiguous EN-DC also should be met in addtion to intra-band non-contiguous EN-DC*.* The intra-band requirements also apply for these carriers when applicable EN-DC configuration is a subset of a higher order EN-DC configuration.  NOTE 5: The frequency range above 3600 MHz for Band n78 is not used in this combination.  NOTE 6: The frequency range below 2506 MHz for Band 41 is not used in this combination.  NOTE 7: Applicable for UE supporting inter-band EN-DC with mandatory simultaneous Rx/Tx capability.  NOTE 8: The frequency range in band n28 /28 is restricted for this band combination to 703 - 733 MHz for the UL and 758-788 MHz for the DL. This restriction also applies for any band combinations when DC\_20\_n28/DC\_28\_n20/CA\_20-28/CA\_n20-n28 is a subset of a higher order band combination.  NOTE 9: The combination is not used alone as fall-back mode of other band combinations in which UL in Band 42 or Band 48 is not used.  NOTE 10: Void.  NOTE 11: For a UE not indicating *interBandMRDC-WithOverlapDL-Bands-r16*, the minimum requirements apply when the maximum power spectral density imbalance between downlink carriers is within 6 dB. For a UE capable of*interBandMRDC-WithOverlapDL-Bands-r16* and not capable of *requirementTypeIndication-r18* or a UE capable of *interBandMRDC-WithOverlapDL-Bands-r16* and *requirementTypeIndication-r18* but is not provided with *nonCollocatedTypeMRDC-r18* and is configured with *maxMIMO-Layers* with value less than or equal to 2, the power imbalance requirement defined in clause 7.10B.3 apply. For a UE capable of both *interBandMRDC-WithOverlapDL-Bands-r16* and *requirementTypeIndication-r18* and is provided with *nonCollocatedTypeMRDC-r18*, the minimum requirements apply when the maximum power spectral density imbalance between downlink carriers is within 6 dB. For these UEs, the power spectral density imbalance condition also applies for these carriers when applicable EN-DC configuration is a subset of a higher order EN-DC configuration.  NOTE 12: Applicable for frequency range above 4800 MHz for Band n79 in this combination.  NOTE 13: For a UE not capable of *interBandMRDC-WithOverlapDL-Bands-r16* or a UE capable of *interBandMRDC-WithOverlapDL-Bands-r16* and *requirementTypeIndication-r18* and is provided with *nonCollocatedTypeMRDC-r18*, the minimum requirements apply for synchronized DL carriers with a maximum receive time difference ≤ 3 usec. The requirements also apply for these carriers when applicable EN-DC configuration is a subset of a higher order EN-DC configuration.  NOTE 14: Applicable when dynamic switching between two uplink carriers is conducted. The DL interruption requirements for NR DL carrier(s) and E-UTRA DL carrier(s) are specified in clause 8.2.1.2.14 of 38.133 [15] and clause 7.32.2.12 of 36.133 [16] respectively.  NOTE 15: Simultaneous Rx/Tx capability does not apply for UEs supporting band 42 with a n77 implementation only. Same restrictions are applied to related higher order configurations.  NOTE 16: The frequency range in band n41 is restricted for this band combination to 2595 – 2645 MHz.  NOTE 17: The frequency range in band n28 is restricted for this band combination to 728 - 738 MHz for the UL and 783 - 793 MHz for the DL. This restriction applies also for these band combinations when applicable EN-DC configuration is part of a higher order EN-DC configuration.  NOTE 18: Only single switched UL is supported.  NOTE 19: The implementation with 4 antennas is targeted for FWA form factor for this band combination.  NOTE 20: The combination is not used alone as fallback mode of other band combinations in which UL in Band 2 is not used.  NOTE 21: Minimum requirements for PC2 are applicable for this uplink EN-DC configuration in this downlink/uplink EN-DC configuration with 1Tx antenna connector in each band.  NOTE 22: The PC2 Uplink EN-DC configuration supported in Table 6.2B.1.3-1 is applicable to the same EN-DC configuration without additional indication of NOTE 21.  NOTE 23: Minimum requirements for Power Class 2 are applicable for this EN-DC configuration with 1Tx antenna connector in one band and 2Tx antenna connectors in the other band.  NOTE 24: Minimum requirements for Power Class 2 are applicable for this EN-DC configuration with 1Tx antenna connector in one band and 2Tx antenna connectors in the other band. | | | |

---Text omitted---

Table 5.5B.4a.1-1: Inter-band NE-DC configurations within FR1 (two bands)

|  |  |  |
| --- | --- | --- |
| NE-DC  configuration | Uplink NE-DC  configuration  (NOTE 1) | Single UL allowed |
| DC\_n1A\_28A | DC\_n1A\_28A | No |
| DC\_n3A\_1A | DC\_n3A\_1A | DC\_n3\_1 |
| DC\_n3A\_8A | DC\_n3A\_8A | No |
| DC\_n8A\_1A | DC\_n8A\_1A | No |
| DC\_n8A\_3A | DC\_n8A\_3A | No |
| DC\_n28A\_3A  DC\_n28A\_3C | DC\_n28A\_3A | No |
| DC\_n28A\_8A  DC\_n28A\_8B | DC\_n28A\_8A | No |
| DC\_n28A\_20A3 | DC\_n28A\_20A | No |
| DC\_n28A\_34A | DC\_n28A\_34A | No |
| DC\_n28A\_39A  DC\_n28A\_39C | DC\_n28A\_39A | No |
| DC\_n28A\_40A  DC\_n28A\_40C | DC\_n28A\_40A | No |
| DC\_n77A\_40A  DC\_n77A\_40C  DC\_n77A\_40D | DC\_n77A\_40A | No |
| DC\_n78A\_40A  DC\_n78A\_40C  DC\_n78A\_40D | DC\_n78A\_40A | No |
| DC\_n41A\_3A  DC\_n41A\_3C  DC\_n41C\_3A | DC\_n41A\_3A | No |
| DC\_n41A\_8A  DC\_n41A\_8B  DC\_n41C\_8A | DC\_n41A\_8A | No |
| DC\_n41A\_34A2 | DC\_n41A\_34A | No |
| DC\_n41A\_39A2  DC\_n41A\_39C2  DC\_n41C\_39A2 | DC\_n41A\_39A | No |
| DC\_n41A\_40A2  DC\_n41A\_40C2  DC\_n41C\_40A2 | DC\_n41A\_40A | No |
| DC\_n77A\_1A  DC\_n77(2A)\_1A | DC\_n77A\_1A | DC\_n77\_1 |
| DC\_n77A\_3A  DC\_n77(2A)\_3A | DC\_n77A\_3A | DC\_n77\_3 |
| DC\_n77A\_8A  DC\_n77(2A)\_8A | DC\_n77A\_8A | No |
| DC\_n78A\_1A | DC\_n78A\_1A | No |
| DC\_n78A\_3A | DC\_n78A\_3A | No |
| DC\_n78A\_3C | DC\_n78A\_3A | No |
| DC\_n78A\_5A | DC\_n78A\_5A | No |
| DC\_n78A\_7A | DC\_n78A\_7A | No |
| DC\_n78A\_7A-7A | DC\_n78A\_7A | No |
| DC\_n78A\_8A | DC\_n78A\_8A | No |
| DC\_n78A\_26A | DC\_n78A\_26A | No |
| NOTE 1: Uplink NE-DC configurations are the configurations supported by the present release of specifications.  NOTE 2: The minimum requirements apply only when there is non-simultaneous Tx/Rx operation between E-UTRA and NR carriers. This restriction applies also for these carriers when applicable EN-DC configuration is part of a higher order EN-DC configuration.  NOTE 3: The frequency range in band n28 is restricted for this band combination to 703 - 733 MHz for the UL and 758-788 MHz for the DL. | | |

---End of changes---